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**Request for Reconsideration After Final Action**  
**U.S. Patent Application No. 10/678,636**

**REMARKS**

Claims 92-106 are pending in the subject application, have been examined and stand rejected. No claims have been amended in relation to their immediate prior version. Favorable reconsideration of the application and allowance of all of the pending claims are respectfully requested in view of the above amendments and the following remarks.

Claims 98-102 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,256,937 to Haeber in view of U.S. Patent No. 5,404,946 to Hess; while claims 103-106 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 7,063,157 to Bartlett in view of Hess. The Examiner has further provisionally rejected claim 98 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 17 of copending U.S. Patent Application Serial No. 11/474,314. Applicants respectfully traverse and request the Examiner to reconsider these rejections based upon the following remarks and the attached Declaration under 37 C.F.R. §1.132.

Regarding the Examiner's nonstatutory obviousness-type double patenting rejection, it is noted that U.S. Patent Application Serial No. 11/474,314 ("the '314 application") is a divisional of the present application. This divisional application was filed as a result of the Examiner making a restriction requirement in the Office Action mailed April 10, 2006, where the Examiner indicated that claims 1-91 (which included claims directed to methods of suspending a well, as recited in independent claim 1, methods of completing a well, as recited in independent claim 12, and methods of working over a completed well, as recited in independent claim 29), were drawn to a "*separate and distinct invention*" from claims 92-106. In the Response filed June 6, 2006, Applicants elected, without traverse, claims 92-106 for prosecution in the present application, while non-elected claims 1-91 were canceled.

The claims in the '314 application include method claim 1, which recites method steps that are of the same basic scope as non-elected (and now canceled) claim 1 of the present application. Claim 17 of the '314 application depends from claim 12, which depends from claim 1. Thus, claim 17 of the '314 application includes all of the limitations its parent claim 1. Since

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it was the Examiner's indication that claims 1-91 and claims 92-106 of the present application fall into "*separate and distinct invention*" categories, and since at least claim 1 (and its dependent claims) of the '314 application falls within the scope of the "*separate and distinct invention*" category of non-elected (and now canceled) claims 1-91 of the present application, it is respectfully submitted that it is unreasonable and improper for the Examiner to now make an obviousness-type double patenting rejection based upon dependent claim 17 in the divisional application. The Examiner is therefore requested to withdraw the provisional obvious-type double patenting rejection of claim 98.

Each of independent claims 92, 98 and 103 recites the feature that control of a well is maintained using at least two independently verifiable deep-set well control barriers.

In particular, claim 92 recites a method of completing a sub-sea well using a horizontal christmas tree for production flow control, the horizontal christmas tree having a body, the method comprising the steps of forming an assembly by installing a completion string terminating at its upper end in and suspended from a tubing hanger in the body of the horizontal christmas tree, the assembly being formed above the water line, and running the assembly to the sub-sea well. Claim 92 further recites that the tubing hanger and the horizontal christmas tree are above the water-line during the step of forming the assembly while control of the well is maintained by using at least two independently verifiable deep-set well control barriers.

Claim 98 recites a method comprising coupling a tubing string with a Christmas tree above water, and landing the Christmas tree on a subsea wellhead while maintaining control of the well using at least two independently verifiable deep-set well control barriers.

Claim 103 recites a method comprising coupling a tubing string with a tubing hanger above water, landing the tubing hanger on a subsea wellhead, and landing a Christmas tree on the subsea wellhead while maintaining control of the well using at least two independently verifiable deep-set well control barriers.

It is respectfully submitted that no combination of Haeber, Bartlett and/or Hess renders obvious the combined features of claims 92, 98 and 103.

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In the previous non-final Office Action mailed August 25, 2006, the Examiner rejected each of independent claims 92, 98 and 103 as being anticipated by one or both of Haeber and Bartlett. In response to the Examiner's previous Office Action, these claims were amended to include the feature that control of the well is maintained by using at least two independently verifiable deep-set well control barriers.

In response to the previous non-final Office Action, Applicants also submitted a Declaration under 37 C.F.R. §1.132 by Paul Anthony Kelley (hereinafter referred to as "the first Declaration") as evidence to support Applicant's position that it would not have been obvious to one of ordinary skill in the art to modify either Haeber or Bartlett based upon another teaching, and absent improper hindsight of the present application, in order to obtain the invention as recited in claims 92, 98 and 103. The first Declaration sets forth that Mr. Kelley is a person who constitutes one having ordinary skill in the oil and gas industry, and in particular in the field of deep sea well completions, suspension and work-over operations. As set forth in paragraphs 3-6 of the first Declaration, it is a longstanding standard industry practice to use one deep-set barrier or plug and one shallow barrier or plug when suspending a well, with the technical reasons for providing a deep-set plug and a shallow plug being provided in these paragraphs.

Paragraphs 7-11 of the first Declaration establish the usefulness and significant commercial success of the invention, which clearly serves as strong evidence that the novel feature of using at least two independently verifiable deep-set well control barriers is not an obvious modification to conventional deep sea well suspension techniques. For example, paragraphs 9 and 10 of the first Declaration clearly show strong secondary considerations of non-obviousness (see, e.g., MPEP § 2141 and *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966), in relation to evaluation of secondary considerations in the determination of obviousness, including commercial success and long felt but unsolved needs in the industry). In particular, these paragraphs of the first Declaration provide strong evidence that the claimed invention provides a significant cost savings over the conventional approach of using one deep-set barrier and one shallow barrier, since the claimed invention obviates the need for a BOP stack used to

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ensure two independently verifiable well control barriers are in place at all times during suspension of a well. If this novel feature was simply an obvious modification of either Haeber or Bartlett, the question arises as to why there is no teaching of such feature in any of the art cited by the Examiner or in conventional industry practice in relation to completing and maintaining a deep-sea well, particularly since providing such a feature results in significant cost savings benefits?

Thus, the first Declaration provides strong evidence that there is simply no reason, absent improper hindsight and reliance upon the invention of the subject application, to provide at least two independently verifiable and deep-set well control barriers for the methods taught in each of Haeber and Bartlett. At best, one of ordinary skill in the art would have been motivated, based upon longstanding and conventional industry standards, to utilize one deep-set plug and one shallow plug during the suspension of the deep sea wells of Haeber and Bartlett, which is significantly different from the claimed invention.

In final Office Action, the Examiner acknowledges that Haeber and Bartlett fail to anticipate claims 92, 98 and 103. However, despite the submission of the first Declaration with the previously filed Amendment, the Examiner now asserts that these claims are obvious based upon a combination of Haeber with Hess or a combination of Bartlett with Hess. Applicants respectfully request the Examiner to reconsider and withdraw this rejection based upon the following remarks and the submission herewith of a second Declaration under 37 C.F.R. §1.132 by Paul Anthony Kelley (hereinafter referred to as “the second Declaration”).

**Haeber in view of Hess**

As noted in the previous Amendment filed November 14, 2006, Haeber describes an underwater well completion method, in which at least one blow out preventer (BOP) is used during the drilling and completion stages, and further where the BOP is removed before running a combined Christmas tree and tubing string in open water during well completion. After removal of the BOP and prior to setting of the wellhead assembly or Christmas tree, a Baker Oil

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Tool, Inc., Model “D” wire-line-set single bore production packer 217 is installed in the inner casing string 183 in combination with a wire line retrievable plug 218 (see Col. 12, lines 57-75 and Fig. 30 of Haeber). In addition, Haeber describes that a Brown Oil Tool Co. dual bore hydraulic-set production packer 205 may be run into the well on the first tubing string 192 to seat the bottom of the second tubing string 196 against the casing after the tubing string 196 has been run into the well.

The production packer 205 of Haeber provides no barrier whatsoever to the flow of hydrocarbons from the well during the completion stage. Rather, when the tubing strings 192 and 196 are withdrawn upwardly to the barge 11 described in Haeber, the production packer 205 stays in position in the well bore such that hydrocarbons flow through the bore of the packer 205. Accordingly, Haeber fails to teach the feature of at least two independently verifiable deep-set well control barriers as recited in claims 92, 98, 103.

The Examiner acknowledges in the final Office Action that Haeber fails to teach the feature of two independently verifiable deep-set well control barriers as recited in these claims. However, the Examiner now asserts that it would have been obvious to provide such a feature in Haeber based upon the teachings of Hess.

Initially, it is noted that the “*deep-set*” language in the claims reciting “*at least two independently verifiable deep-set well control barriers*” is described in the specification (see page 8, lines 24-29) as providing at least two barriers that are located below the depth of the lowermost end of a tubing string (typically hung from a tubing hanger or other equipment) when the tubing string is installed in its final position in a well. The term “*barrier*” is described in the specification (see page 1, lines 28-31) as a physical measure that is capable of forming a seal so as to prevent an uncontrolled release or flow of fluid from the pressure side of the barrier. Thus, the “*independently verifiable deep-set well control barriers*” of the claimed invention are barriers provided at a “*deep-set*” location within the well that are independently verifiable of each other so as to facilitate a completion or tubing string to be run into the well with the christmas tree as a single assembly. Hess fails to make up for the deficiencies of Haeber in that

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Hess fails to teach the use of at least two independently verifiable deep-set well control barriers as recited in the claims.

Hess describes a wireline-powered inflatable-packer system including a borehole probe used to take geophysical measurements for formation evaluation in an open hole or bore hole. Referring to Fig. 1A of Hess, a packer system is shown that includes an inflatable packer 1 connected by tubing 2 to a valve chamber 4, where the valve chamber 4 controls the flow of a borehole liquid from a pump system 3 to inflate or deflate packer 1. A winch 21, located at the surface, controls movement of the packer system within the borehole and is connected through a logging cable 8 to an electronic unit 11 containing probe electronics. The packer pump system 3 receives electrical power from a pump control panel 7 on the surface and through cable 8. Clearly, the packer system of Hess remains connected via a cable to components at the surface during all operations of the packer system.

Hess further describes an embodiment in Fig. 2 in which two or more packers 12, 13 are connected together and inflated with a single packer pump 3, where electricity is run from the surface to pump 3 via cable 8 to inflate or deflate the packers. A check valve 22 (shown in Fig. 3 of Hess) keeps the packers 12, 13 inflated when the pump ceases operation. Clearly, the two packers 12, 13 in the system described by Fig. 2 of Hess are not independent of each other. To the contrary, a single check valve maintains the integrity of both packers. If this check valve fails, the integrity of the seal for both packers will be jeopardized. In addition, if one packer is ruptured so as to fail and become unsealed within the borehole, the other packer (which is connected to the ruptured packer) would become unsealed as well.

The Examiner asserts that Hess teaches two independently verifiable deep-set well control barriers in order to control movement of borehole fluid at any desired depth within a borehole, and further that one of ordinary skill in the art would be motivated to modify Haeber to provide a dual packer system at a deep-set location based upon the teachings of Hess. Applicants respectfully disagree with this assertion for a number of reasons.

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First, it is noted that Haeber relates to suspending and maintaining an underwater well, whereas Hess relates to using a single or multiple packer system in a producing well. In other words, the borehole probe of Hess is not designed or intended for being run into a well, set, released and then maintained in a well for later retrieval after well completion (e.g., as in the underwater well completion method described in Haeber). Rather, as is clearly evident from the teachings of Hess, the packers 12, 13 remain connected to surface equipment via cable 8 to render the packers operable. It therefore unclear as to how or why one of ordinary skill in the art would utilize the wireline-powered packer system of Hess (with single or dual packers) as a replacement for any deep-set barrier during completion of a well, since the packer system of Hess is clearly intended for on-site use during well production (and not for creating a barrier and then leaving in place until a later time when the well is to be accessed).

Further, Hess teaches using multiple packers when it is desirable to measure static pressure of the borehole fluid in multiple hydraulic zones corresponding to the regions that are in hydraulic communication with the liquid in multiple fractures (see Col. 4, lines 26-37 of Hess). This would not immediately suggest to one having ordinary skill in the art to use such a dual or multiple packer system in a deep-set location during completion of a well, particularly at a time when there is no flow of hydrocarbons within the well (i.e., at a time before the well is in a production phase). Thus, given the differences between Haeber and Hess, it is respectfully submitted that one of ordinary skill in the art would not have looked to Hess to modify Haeber in a manner that renders obvious any of claims 92, 98 and 103.

Further still, Hess fails to teach two independently verifiable deep-set barriers as recited in the claims. As noted above, the multiple packers in the embodiment of Fig. 2 of Hess are not independent of each other and thus not independently verifiable in the manner recited in the claims. Rather, as noted above, the packers 12, 13 of Hess are clearly dependent upon each other for maintaining a seal within the borehole at their respective locations. In other words, both packers 12, 13 of Hess are inflated and deflated together to form and release a seal, and the leak or failure of one packer will result in failure of the other.

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There is further no disclosure or suggestion in Hess of placing any of the packers at a deep-set location as recited in the claims. In other words, there is no disclosure or suggestion in Hess of placing two packers at a location that is below the depth of the lowermost end of a tubing string (typically hung from a tubing hanger or other equipment) when the tubing string is installed in its final position in a well.

In addition, the second Declaration of Mr. Kelley has been provided to support Applicants' position that the claims are not obvious and should be patentable over any combination of Haeber with Hess. The first paragraphs 1-10 of the second Declaration are similar to the first Declaration in describing the conventional practice in well completion and suspension operations, where conventional practice is to use one deep-set barrier and one shallow barrier. The second Declaration further reiterates the significant commercial success realized by the claimed invention as set forth in the first Declaration, which should serve as strong evidence of nonobviousness of the invention based upon at least the secondary considerations of commercial success and long felt but unsolved needs in this industry.

Referring to paragraphs 11-14 of the second Declaration, Mr. Kelley provides his opinion (at least at the level of one having ordinary skill in the art of deep-sea well completions, suspension and work-over operations) that it would not have been obvious to combine Hess with Haeber in the manner suggested by the Examiner to provide two deep-set barriers in Haeber. Mr. Kelley's opinion is similar to many of the remarks provided above. In addition, it is Mr. Kelley's opinion that providing an inflatable packer such as is taught in Hess as a deep-set barrier in Haeber would present a greater risk in slippage and migration of the packer in comparison to using the plug taught in Haeber, thus making the packer system of Hess less desirable for use as a deep-set barrier (see paragraph 14 of the second Declaration).

For all of the foregoing reasons, it is respectfully submitted that there is no reasonable combination of Haeber with Hess that renders obvious claims 92, 98 and 103. The Examiner is therefore requested to reconsider and withdraw the rejections of claims 92 and 98 as being obvious over Haeber in view of Hess.



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Claims 93-97 and 99-102 depend from one of claims 92 and 98 and therefore include all of the limitations of their parent claims. Accordingly, these claims are also not obvious and thus patentable over any combination of Haeber with Hess. The Examiner is therefore requested to withdraw the rejections of these claims based upon the previous remarks for claims 92 and 98.

**Bartlett in view of Hess**

As noted in the previous Amendment, Bartlett describes an apparatus and method for installation of subsea well completion systems. As shown in Fig. 1 of Bartlett, a conductor pipe 12 is secured in the sea floor, with a conductor housing 16 secured to an end of the pipe, a completions guide base or CGB 18 secured to the conductor housing, and a wellhead 20 landed in the housing. A vertical Christmas tree 22 is connected to the top of the wellhead 20. A first casing hanger 40 is connected to a first casing string 42 and landed in the wellhead 20, followed by a second casing hanger 44 being connected to a second casing string 46 and landed in the wellhead 20 above the first casing hanger 40 as shown in Fig. 2. A tubing hanger 48 is then connected to a top portion of a tubing string 50 and landed in the second casing hanger 44.

Bartlett further teaches that, once the tubing hanger 48 is landed, a production bore 56 of the tubing hanger 48 is sealed by a wireline plug that is installed through the running string and a tubing hanger running tool or THRT 96 that is used to land the tubing hanger (see Col. 4, lines 40-67, of Bartlett). The wireline plug is required to provide an additional barrier between the well bore and the environment until the Christmas tree 22 can be installed on the wellhead 20. Once the Christmas tree 22 is installed, the wireline plug is removed using a ROV operated subsea lubricator or ROSL 106 (see Col. 5, lines 1-36, of Bartlett).

Bartlett fails to teach the use of a deep-set barrier, since the wireline plug of Bartlett is provided in the tubing hanger production bore and not at a location that is below the depth of the lowermost end of a tubing string (typically hung from a tubing hanger or other equipment) when the tubing string is installed in its final position in the well. Therefore, as acknowledged by the Examiner, Bartlett fails to anticipate claims 92, 98 and 103.

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However, the Examiner asserts that it would have been obvious to modify Bartlett to provide two independently verifiable deep-set barriers based upon the teachings of Hess. As with the previous rejection of claims 92 and 98 based upon Haeber in view of Hess, the Examiner asserts that Hess teaches the use of two independently verifiable deep-set barriers. Applicants respectfully disagree that Bartlett could be combined with Hess and the manner suggested by the Examiner to render claim 103 obvious, and Applicants further disagree that Hess even teaches the use of two independently verifiable deep-set barriers.

As noted above, Hess does not teach two independently verifiable barriers. Rather, the dual packer system described in Hess uses two packers 12, 13 that are dependent upon each other in that they inflate and deflate together, and the failure of one packer will result in the failure of the other (since they are connected together and operated by a single pump 3 and single check valve 22). Further, there is no teaching in Hess of providing any of the packers at a deep-set location in the manner as recited in the claims.

In essence, Bartlett would have to be modified in the following manner to arrive at the claimed invention: 1. the location of the wireline plug of Bartlett, which is described as being located in the tubing hanger production bore, would have to be moved to a deep-set location; and 2. the wireline plug of Bartlett would be switched with a dual packer system as taught in Hess, at such deep-set location. It is respectfully submitted that there is no reasonable motivation to provide such wholesale changes to Bartlett, absent improper hindsight and reliance upon the disclosure of the present application.

Mr. Kelley further provides his opinion in the second Declaration as to the suggested combination of Bartlett with Hess (see paragraph 15 of the second Declaration). In particular, Mr. Kelley provides his opinion, at least at the level of one having ordinary skill in the art of well completions, suspension and work-over operations, that there is simply no motivation to replace the wireline plug (which is not even a deep-set barrier) with a dual or even a single packer system as taught in Hess. Mr. Kelley indicates that this is because an inflatable packer as taught in Hess is not suitable for placement in a tubing hanger production bore.

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For all of the foregoing reasons, it is respectfully submitted that claim 103 is not obvious over Bartlett in view of Hess, and the Examiner is requested to withdraw the rejection of this claim based upon these two references.

Claims 104-106 depend from claim 102 and therefore include all of the limitations of this claim. Accordingly, these claims are also not obvious and thus patentable over any combination of Bartlett with Hess. The Examiner is therefore requested to withdraw the rejections of these claims based upon the previous remarks for claim 102.

In view of the foregoing, the Examiner is respectfully requested to withdraw the present claim rejections and find the application to be in condition for allowance with claims 92-106. However, if for any reason the Examiner feels that the application is not now in condition for allowance, the Examiner is respectfully requested to call the undersigned attorney to discuss any unresolved issues and to expedite the disposition of the application.

Applicants hereby petition for any extension of time that may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 05-0460.

Respectfully submitted,

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